EFFECTS OF SHEAR AND NORMAL STRAIN ON PLATE BENDING.

Voyiadjis G.Z., Baluch M.H., Chi W.K.

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Abstract: The equations governing the bending of plates, taking into account the influence of transverse normal strain, are recast into a form involving the average transverse displacement function, w. The resulting sixth order bending system of equations is solved for the Levy-type plates, with a variety of boundary conditions considered in the direction orthogonal to the simply supported direction. Results are tabulated for the displacement, w, together with plate moments M//x and M//y. Comparisons are made to corresponding quantities as obtained from the classical plate theory and the shear deformation theory where available.